

ABSTRACT OF THE DISCLOSURE

A network design method proceeds by generating cycles, evaluating the economics of building rings on those cycle, and building any economic rings. Generating a cycle involves picking two endpoints between which two disjoint link and node paths are desired - the two nodes selected are thus nodes on the candidate rings. Once a cycle is generated, various combinations of OADM/ADM nodes on the cycle are tried, from rings using three nodes to rings using all of the nodes on the cycle. The network design method considers a sequence of SONET/SDH and DWDM rings on each cycle generated, and compares the cost of carrying demand by SONET/SDH rings, DWDM rings, and an alternative dual-hub benchmark architecture. The ring constraints such as maximum circumference are applied before ring costs are calculated, and rings violating those constraints are eliminated from consideration. The demand carried by the most economic ring is removed from the input list of demands, and the entire process is repeated until no demand remains or it is not economical to carry the remaining demands by using rings. After all economic rings are considered, any remaining demands are carried on point-to-point systems.